

REMARKS

This Supplemental Amendment cancels claims 3, 4 and 6, and amends claims 1, 5, 7, 8 and 30-33. The through-flow mixer feature of claim 1 is taken from claim 6. Claim 5 has been editorially rewritten to conform with claim 1 as presently amended. Claim 7 has been amended to depend from claim 1, and to specify the fibers come into contact with the precipitant immediately after activation. The dependency of claims 8 and 30-33 has been changed to reflect the cancellation of claims 3, 4 and 6. Claims 1, 2, 5, 7-15 and 27-39 are pending.

Examiner Minskey is thanked for entering the Amendment After Final Rejection filed November 1, 2010 and withdrawing the 35 U.S.C. § 112, second paragraph, rejection of claim 2.

A Request for Continued Examination is attached. Entry of this Supplemental Amendment is requested.

The 35 U.S.C. § 103(a) rejection of claims 1-4, 8-15, 27-30 and 34-39 over U.S. Patent No. 5,223,090 to Klungness et al. in view of U.S. Patent No. 6,416,727 to Virtanen et al. is traversed. The claimed method activates fibre material in an activation zone created by a through-flow mixer operating on the principle of an impact mill before precipitation of a mineral substance, thereby

increasing the ability of the fibres to bind with one another and to precipitated mineral substances. Another feature of the claimed method is that dwell time of the fibre material in the activation zone is less than 10 seconds. A third feature of the claimed method is that the fiber suspension is fed into the gas space as small drops, which ensures a large contact area between the fibrous material, the reactive mineral substance and the gas containing the precipitating reactant (e.g., carbon dioxide).

The cited combination of references fails to raise a prima facie case of obviousness against the claimed method because one of ordinary skill in the art is given no motivation or suggestion to combine and modify their disclosures to reach the claimed method. More particularly, Klungness et al. fails to disclose activating its fiber material in an activation zone prior to precipitation of the precipitated mineral substance. Instead, Klungness et al. teaches first mixing pulp with calcium oxide or calcium hydroxide in a mixer (Col. 8, lines 35-40). Then this material is brought into contact with carbon dioxide under pressurized conditions for 15 minutes. After the formation of calcium carbonate, the pulp is "refined" to facilitate contact between the fibers and the calcium carbonate. See Col. 8, lines 41-51.

In contrast, the claimed method activates its fibers prior to formation of calcium carbonate. This difference in sequence of method steps is critical. The claimed method produces a very high loading of fillers because the fibers have been fibrillated before formation of the filler (calcium carbonate). Furthermore, this step will produce a strong bond between the fibers and the fillers.

Virtanen does not provide any motivation to modify Klugness et al. by changing its sequence of steps. As previously discussed, the Virtanen method prepares precipitated calcium carbonate per se rather than paper containing calcium carbonate filler. Virtanen fails to disclose or suggest *in situ* loading of high amounts of these fillers into the fiber material.

The following points respond to the arguments made in the Advisory Action:

1. "Activation" - Claim 1 defines activation of the fiber material as an increase in the ability of the fibers to bind with each other and to bind precipitated mineral substances. This claim has now been amended to define the activation zone as a through-mixer operating on the principle of an impact mill, and to specify the fibers

are activated before precipitation of the mineral substance.

2. Pressurized Refiner - Even assuming the pressurized refiner disclosed by Klungness et al. may cause some fiber activation, activation by a through-mixer operating on the principle of an impact mill will be far more effective. Moreover, the through-mixer required by claim 1 disintegrates the fibre suspension into small drops or particles, which are distributed into the gas space containing a precipitant. The refiner taught by Klugness et al. cannot disintegrate its fiber suspension into small drops or particles.
3. Gas Space - Klugness et al. does disclose a gas space in the hopper of its refiner. However, as discussed above, Klugness et al. forms its calcium carbonate before its refining step, and thus the calcium carbonate is formed before fiber activation. In contrast, the claimed method feeds an activated fiber suspension into the gas space as small drops or particles, which ensures a large contact area between the activated fibrous material, the reactive mineral substance and the gas containing the

precipitating reactant. Klugness et al. fails to disclose or suggest this sequence of steps.

4. Virtanen - Col. 1, line 20, in the "Description of the Related Art", merely points out that precipitated calcium carbonate is used as a paper filling or coating agent. There is no disclosure of in situ loading of calcium carbonate into fiber material after the fiber has been activated. Similarly, Col. 2, lines 51-68 disclose how pigments such as kaolin, chalk, talc, or titanium dioxide, can be coated with precipitated calcium carbonate. Again, there is no disclosure or suggestion of in situ loading of calcium carbonate into fiber material after the fiber has been activated.

Reconsideration and withdrawal of the obviousness rejection of claims 1-4, 8-15, 27-30 and 34-39 over Klungness et al. in view of Virtanen are requested.

The 35 U.S.C. § 103(a) rejection of claims 5-7 and 31-33 over Klungness et al. in view of Virtanen is also traversed. These claims all depend, ultimately, from claim 1. Accordingly, the dependent claims are also patentable over the cited references for at least the reasons discussed above.

It is believed this application is in condition for allowance. Reconsideration and withdrawal of all rejections of claims 1-15 and 27-39, and issuance of a Notice of Allowance directed to claims 1, 2, 5, 7-15 and 27-39, are earnestly requested. The Examiner is urged to telephone the undersigned should he believe any further action is required for allowance.

The extension of time and RCE filing fees are being paid electronically today. It is not believed any additional fee is required for entry of this Amendment. Nevertheless, the Commissioner is authorized to charge Deposit Account No. 50-1258 in the amount of any such required fee.

Respectfully submitted,

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Enclosures:
Petition for Extension of Time
Request for Continued Examination